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PROJECT NO. 52373

REVIEW OF WHOLESALE ELECTRIC MARKET DESIGN	**§** **§**	**PUBLIC UTILITY COMMISSION OF TEXAS**

PROJECT NO. 52268

CALENDAR YEAR 2021 – WORKSHOP AGENDA ITEMS WITHOUT AN ASSOCIATED CONTROL NUMBER	**§** **§** **§** **§**	**PUBLIC UTILITY COMMISSION OF TEXAS**

COMMENTS OF OHMCONNECT TEXAS LLC

Executive Summary

These comments are submitted on behalf of OhmConnect Texas LLC, a Retail Electric Provider whose core offering will be fixed commodity pricing coupled with residential load flexibility. Because residential demand response is not an afterthought to our value proposition but rather an essential element, our primary response will be directed to Commissioners' question #4, although that focus has implications for the other questions as well.

Reliability of the power grid is no longer only about having enough generation and transmission to meet the needs of load, but rather, is about how to manage the increasingly dynamic relationship between resources and loads as our generation mix changes. It will mean leveraging data, and information and communications technology, to manage increasing complexity. It will require management of an evolving complement of services which, in combination, can achieve reliability and economy. And, we continue to believe, the balance of services can most economically and efficiently be struck by ERCOT itself.

The primary theme of these comments is that each resource has its unique characteristics, both weaknesses and strengths, costs and values. Demand response products are a vital part of this resource mix. Some large industrial loads can respond instantaneously when modest voltage drops are detected.

And, large loads can, on occasion, be interrupted for significant periods, perhaps by just sending one shift home. Residential demand response is a different resource, with particular value for response of limited duration during periods of peak demand. Aggregating residential customer responses can economically deepen or lengthen the duration of response, within limits, but can be called relatively frequently.

The Commission will find the greatest value in allowing each resource to be incorporated in ways that capitalize on their respective strengths. We have proven large populations of average residential customers can become a substantial peaking resource, and that resource is just beginning to be tapped. Efforts to shoe-horn multiple resources into a single product mold will simply limit the choices available to the Texas or ERCOT market, to the detriment of all.

In addition, the Commission has a number of underused tools available to it to develop new ERCOT markets, or new TDU demand reduction programs or capacity, and to stimulate customers to contribute to the reliability and economy of the Texas grid through all these potential avenues. Perhaps no tool is more important than the Commission's ability to educate consumers about the market, and particularly as conditions and technology evolve, about the opportunities consumers have to benefit themselves and the broader community by participating in markets dynamically.

Comments

The Commission, in Project 52373 – Review of Wholesale Electric Market Design, asks, as question 4:

"Is available residential demand response adequately captured by existing retail electric provider (REP) programs? Do opportunities exist for enhanced residential load response?

In a word, no. There are only three avenues through which demand response can be implemented in ERCOT economically.

1) A REP can offer demand response to its own customers and capture the value of savings in energy or ancillary services, and associated costs.
2) The state, either through ERCOT or the TDUs can create product markets or programs to acquire residential demand response, the cost of which is paid directly to the provider, and uplifted to the market (through ERCOT charges or TDU rates).
3) Customers through behavioral response can individually respond to price signals or invest in technology and/or enlist a service provider to help respond to price signals. The availability of TOU rates can help increase the reward for customer participation.

Retail Supplier Demand Response

Retailers are still learning how to elicit customer participation or engagement, and how to deploy modern information and communications technologies to meet customer expectations for simplicity and effectiveness. The Texas investment in AMI and the development of Smart Meter Texas has allowed it to be the model for other markets in many ways. This infrastructure supports the the creation of products that have the effect of shifting load off daytime hours to times of generally lower demand however, there is far more potential gain through the efficient deployment of technology that provides customers with clear signals and incentives to reduce consumption during periods of peak demand. Peak-time rebates are being given to nearly a million consumers for responding to demand response calls from their retail supplier but here again, these offerings are peripheral to those retailers offers and fail to leverage the full value of this potential resource..

OhmConnect is perhaps unique in that it is preparing to enter the Texas market as a REP whose core business is based upon recruiting and engaging residential customers in the process of managing their energy in response to the needs and prices of the electric market. Making that fun for its residential customers differentiates the company from less engaging demand response or REP offerings, and

demonstrates we are just learning to build residential flexibility as a resource. We draw demand response from customer behavior as well as from connected devices, including a smart plug of our own making. Reaching the full potential for this resource from our own customers, requires that we understand and actively engage them, and that we understand residential loads and how they behave.

For this important resource to reach its full potential statewide, and for ERCOT to realize its full benefit, the market must also be willing to simply recognize its true nature and, allow it to contribute in ways appropriate to its capability. The Commission and ERCOT are currently working to understand how to best incorporate storage resources in the market, and it turns out that it may be useful to consider demand response in this way as well, because much of today's demand response is essentially a storage resource.

For example, a large manufacturer can offer to turn off big loads, if it produces product in batches, so that it can meet current orders from stored goods (stockpiles of product that can be drawn down during interruptions of power).[1] Particularly today, residential response is largely a thermal energy storage product. The largest consumption in the residential setting is taken up with maintaining internal temperatures. The internal mass of homes (especially of well insulated homes), help carry the home through interruptions of air conditioning or heating systems, without great discomfort of the residents. Whether people adjust or set their own thermostat or, allow it to be managed automatically by a service provider under pre-established boundaries, each thermostat represents nearly 1.0 kW of capacity for short periods of time. By aggregating many customers, we can increase that potential, and by cycling between residential participants (that is reduce the load of one set of customers and then another in turn), we can extend that time. However, the longer a residential resource is expected to respond, the more the aggregate population must be divided, and the lower the relative value of a single customer.

[1] A large consumer may be its own REP or negotiate specific cost and benefits sharing arrangement with its REP.

Beyond a couple hours of response at a time, there is diminishing likelihood residential customers will continue to participate.

Refrigerators represent a massive thermal energy storage resource, as the thermal mass of their contents can carry through an interruption of service, particularly in newer units. We will tap this market through the introduction of our proprietary smart plugs that, along with most smart thermostats, we can control remotely.

Of course, customers can also adjust or turn off other devices or appliances. In the case where a consumer simply reduces their lighting or turns off other non-critical appliances, like TVs or stereos, this really represents simple load reduction or conservation. Where a customer postpones the operation of a clothes washer or drier, puts off washing the dishes or changes the timer on a pool pump it is postponing consumption in a manner somewhat like an industrial customer postponing production.

To maximize the use of today's residential load response resource, it must be allowed to participate as a high frequency but limited duration product. It can help reduce requirements when residential thermal loads typically drive winter or summer peak demands and, help avoid the need for rolling outages on short notice. It can help fill gaps between intermittent renewable energy resources and thermal generation resources coming on-line during those times. But in temperate weather, there is far less demand, so less demand to respond, as long as thermal loads remain the heart of residential demand response.

A business cannot be made of, nor consumers recruited to participate in, programs or products that must mimic something else, such as industrial load resources or thermal generation which do not have these same characteristics. While large industrial loads provide a significant load reduction for a longer period, they can respond to market needs only on a limited number of events. Although residential demand is more seasonal and offers a limited duration response, a key benefit of residential load

resources is that they can be called much more often, even daily, provided those events are of limited duration.

ERCOT Market Products or TDU Programs and Implications for Questions 5

This last observation may seem obvious, but ERCOT staff, even now, is asking stakeholders to consider requiring residential demand response in ERS, and other "weather sensitive loads," to behave more like industrial loads.[2] This will only limit participation of peaking resources further and discourage development of the limited duration product that residential load flexibility today represents.

This has implications for question 5, about ERCOT's Emergency Response Service, which would benefit not by eliminating the distinctions of (largely residential) weather sensitive loads, but recognizing them more explicitly, even by creating a separate limited-duration resource, which might also be priced separately. That is, residential, weather sensitive load resources are not a single product to address all problems, they are a specific resource to address a specific problem, and they could set their own market value. For example, a separate two-hour peak emergency resource market could easily attract significant residential participation.

In addition, the Commission has a great deal of control over the energy efficiency and load management programs of the utilities, including their focus, total spending, and R&D investment.[3] The current programs, while nation-leading when adopted in 1999, are now modest at best. They have received very little commission attention, and have declined in significant ways, for over a decade. The utility load management programs have also not grown significantly in that time.

The Commission's energy efficiency rules have evolved such that there is now a goal for peak reduction and a goal for energy savings each investor-owned utility must meet annually. The way the commission

[2] NPRR 1090
[3] PURA Section 39.905 Goal for Energy Efficiency

defines these goals, and the compensation formulas in the rule, determines how much demand response and efficiency the utilities acquire. It is fully within the Commission's purview and capacity to raise these goals, or modify the compensation formulas, to obtain additional resources, without additional legislation.

The utilities have a legacy load management program, attracting mostly large commercial or industrial loads, which more-or-less complements ERCOT's ERS,[4] but, the TDUs could greatly expand their residential demand response program, were that the Commission's desire. These programs could be particularly attractive if customer price-responsive behavior did not disqualify participation in a TDU emergency response program. (ERCOT ERS currently prohibits this.)

It is interesting to note that we and other demand response aggregators, not infrequently, find that individual homes have limited thermal storage value, and therefore cannot effectively participate in demand response. Generally, this simply means that there is little if any insulation, so the home cools or heats quickly in the absence of active air conditioning. In some cases, HVAC units run full time without hitting the thermostat set points.

While this may seem an indirect point to make, the truth is, the state could greatly increase the potential thermal-storage/demand-response resource of the residential class, by ramping up utility efficiency incentive programs to simply bring residential structures toward current code compliance. No new legislative authority would be required for this action, which would also have the beneficial impact of helping insulate such customers from the potential life-threating impact of harsh Texas weather.

The legislature allowed that utilities could apply for additional efficiency funds for R&D purposes under Public Utility Regulatory Act, Section 39.905 (e):

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[4] A load participating in the TDU programs cannot participate also in the ERCOT ERS, and the TDU program requirements have evolved to serve a similar emergency purpose.

"An electric utility may use money approved by the commission for energy efficiency programs to perform necessary energy efficiency research and development to foster continuous improvement and innovation in the application of energy efficiency technology and energy efficiency program design and implementation. Money the utility uses under this subsection may not exceed 10 percent of the greater of:

(1) the amount the commission approved for energy efficiency programs in the utility's most recent full rate proceeding; or

(2) the commission-approved expenditures by the utility for energy efficiency in the previous year."

In recent years, the Commission has discouraged utilities from actually applying for these funds, and so their potential has remained unrealized. Given the increasingly dynamic conditions we face today, we recommend the Commission revisit this posture, and work with the TDUs to plan out a reasonable program of research, development and demonstration, with associated budgets, to help them to adopt their own initiatives to the needs of the state, the market, and all consumers.

Independent Customer Contributions

Perhaps the most impactful action the Commission could take, to stimulate consumer action, is through the Bully Pulpit. As the Commission deepens its understanding of demand response resources, it can also help educate consumers about the potential benefits to individual participants and the community, about new technologies coming available, and new market services. The more customers know, the greater will be the potential for their participation and contribution.

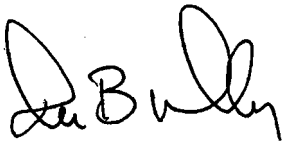
The legislature actually funded a PUC education program when it decided to transition from a vertically integrated electric market to a competitive market, in order to help consumers understand competition.

Perhaps today's complex market transition could be considered an analogous situation, and funding could be found for a Commission-led education effort.

The Commission can also help by sending a message to its staff, to ERCOT, to TDUs and to the other stakeholders that driving participation of loads is not merely priority objective, but an essential step to addressing the loss of load following capability from an increasing percentage of renewable generation in our asset mix.

Thank you for the opportunity to comment on these issues.

Best regard,



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